



Report to the Chairman, Subcommittee  
on Health, Committee on Ways and  
Means, House of Representatives

August 2002

# HIPAA STANDARDS

## Dual Code Sets Are Acceptable for Reporting Medical Procedures



G A O

Accountability \* Integrity \* Reliability

## Report Documentation Page

<b>Report Date</b> 00AUG2002	<b>Report Type</b> N/A	<b>Dates Covered (from... to)</b> -
<b>Title and Subtitle</b> HIPAA STANDARDS: Dual Code Sets Are Acceptable for Reporting Medical Procedures	<b>Contract Number</b>	
	<b>Grant Number</b>	
	<b>Program Element Number</b>	
<b>Author(s)</b>	<b>Project Number</b>	
	<b>Task Number</b>	
	<b>Work Unit Number</b>	
<b>Performing Organization Name(s) and Address(es)</b> U.S. General Accounting Office 441 G Street NW, Room LM Washington, D.C. 20548	<b>Performing Organization Report Number</b> GAO-02-796	
<b>Sponsoring/Monitoring Agency Name(s) and Address(es)</b>	<b>Sponsor/Monitor's Acronym(s)</b>	
	<b>Sponsor/Monitor's Report Number(s)</b>	
<b>Distribution/Availability Statement</b> Approved for public release, distribution unlimited		
<b>Supplementary Notes</b>		
<b>Abstract</b> see report		
<b>Subject Terms</b>		
<b>Report Classification</b> unclassified	<b>Classification of this page</b> unclassified	
<b>Classification of Abstract</b> unclassified	<b>Limitation of Abstract</b> SAR	
<b>Number of Pages</b> 36		

---

# Contents

---

<b>Letter</b>		<b>1</b>
	Results in Brief	4
	Background	6
	ICD-9-CM Vol. 3 and CPT Were Practical Options for Standard Code Sets, Despite Some Limitations	11
	10-PCS Considered Improvement over Current Inpatient Code Set Standard, but Some Challenges Remain	16
	Merit of Establishing a Single Procedural Code Set Uncertain in Light of Practical Considerations	22
	Concluding Observations	25
	Agency Comments	26

---

<b>Appendix I</b>	<b>Code Set Standards for Health-Related Services Adopted under HIPAA</b>	<b>28</b>
-------------------	---	-----------

---

<b>Appendix II</b>	<b>The Distinct and Independent Code Sets Known as “ICD-9”</b>	<b>30</b>
--------------------	--	-----------

---

<b>Appendix III</b>	<b>Comments from the Centers for Medicare and Medicaid Services</b>	<b>31</b>
---------------------	---	-----------

---

<b>Tables</b>		
	Table 1: Criteria for HIPAA Standard Code Sets Met by ICD-9-CM Vol. 3 and CPT	12
	Table 2: Criteria for Standard and Procedural Code Sets Not Met by ICD-9-CM Vol. 3	13
	Table 3: Criteria for Standard and Procedural Code Sets Not Met by CPT	16
	Table 4: Criteria for Standard and Procedural Code Sets Not Met by ICD-9-CM Vol. 3, but Addressed by 10-PCS	18
	Table 5: Standard Code Sets Adopted under HIPAA	28
	Table 6: Description of the Distinct and Independent Code Sets Known as “ICD-9”	30

---

## Figures

Figure 1: The Design and Logic of 10-PCS

17

---

### Abbreviations

10-PCS	International Classification of Diseases, 10 <sup>th</sup> Revision, Procedural Coding System
ADA	American Dental Association
AHA	American Hospital Association
AHIMA	American Health Information Management Association
AMA	American Medical Association
CMS	Centers for Medicare and Medicaid Services
CPT	Current Procedural Terminology
HCPAC	Health Care Professionals Advisory Committee
HCPCS	Health Care Procedural Coding System
HHS	Department of Health and Human Services
HIPAA	Health Insurance Portability and Accountability Act
ICD-9	International Classification of Diseases, 9 <sup>th</sup> Revision
ICD-9-CM Vols. 1&2	International Classification of Diseases, 9 <sup>th</sup> Revision Clinical Modification, Volumes 1 & 2
ICD-9-CM Vol. 3	International Classification of Diseases, 9 <sup>th</sup> Revision Clinical Modification, Volume 3
ICD-10-CM	International Classification of Diseases, 10 <sup>th</sup> Revision Clinical Modification
NDC	National Drug Codes
NCHS	National Center for Health Statistics
NCVHS	National Committee on Vital and Health Statistics
WHO	World Health Organization



United States General Accounting Office  
Washington, DC 20548

August 9, 2002

The Honorable Nancy L. Johnson  
Chairman  
Subcommittee on Health  
Committee on Ways and Means  
House of Representatives

Dear Madam Chairman:

Medical care involves the provision of a myriad of health-related services, from the diagnosis of a medical condition to its treatment. A means to consistently classify, define, and distinguish among these and other health-related services is critical for reimbursing providers and analyzing health care utilization, outcomes, and cost. Codes serve this role by assigning each distinct service a unique identifier. Health care providers, such as hospitals and physicians, report medical conditions and the health-related services they have provided to patients on medical records, which are in turn transcribed into corresponding codes by coding professionals. These codes are then reported on claims forms and submitted to both public and private payers for payment. In addition to their use in these financial and administrative transactions, codes facilitate the analysis of data that are used in monitoring resource utilization and cost; measuring the quality, safety, and efficacy of care; analyzing outcomes of treatment options; and identifying fraud and abuse.

Until recently, there was wide variability in requirements for coding health-related services, such as procedures, diagnoses, medical devices, supplies, and prescription drugs. For example, coding requirements could vary from payer to payer, making the filing of claims with multiple payers administratively burdensome for providers. In addition, this wide variability in coding made it difficult to electronically transmit standardized health-related information and compromised the reliability of health-related data. In enacting the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the Congress sought to simplify data reporting and claims processing requirements across all providers and payers and facilitate the electronic transmission of health-related

---

information.<sup>1</sup> In so doing, HIPAA required the Secretary of the Department of Health and Human Services (HHS) to adopt standard code sets for describing health-related services in connection with financial and administrative transactions, such as filing claims for payment. In addition, HIPAA required these standard code sets to be used by members of the health care industry. In August 2000, HHS adopted the following two code sets for reporting medical procedures.<sup>2</sup>

1. For reporting inpatient hospital procedures, HHS selected the International Classification of Diseases, 9th Revision, Clinical Modification, Volume 3 (ICD-9-CM Vol. 3).<sup>3</sup> This code set is maintained publicly by HHS's Centers for Medicare and Medicaid Services (CMS).
2. For reporting physician services and other medical services including outpatient hospital procedures, HHS selected the Current Procedural Terminology (CPT), which is maintained and copyrighted by the American Medical Association (AMA).<sup>4</sup>

In addition to the code sets HHS adopted for reporting medical procedures, HHS adopted code sets to standardize the reporting of diagnoses and other health-related services, such as medical devices, supplies and equipment, prescription drugs, and dental services. (The standard code sets adopted under HIPAA for health-related services are described in app. I.)

Despite HIPAA's goals for administrative simplification, many representatives of the health care industry have expressed concern that the individual limitations of ICD-9-CM Vol. 3 and CPT result in inefficiencies in record keeping and data reporting. HHS recognized that these procedural code sets would need to be revised in the future,

---

<sup>1</sup>Pub. L. No. 104-191, Title II, Stat. F, 110 Stat. 1936, 2021 (codified at 42 U.S.C. §§ 1320d – 1320d-8 (Supp. II 1996)).

<sup>2</sup>“Procedure” is used to define all medical actions taken to prevent, diagnose, treat, or manage diseases, injuries, and impairments. This definition includes services such as counseling, evaluation, and management of patients.

<sup>3</sup>Other code sets are commonly referred to as “ICD-9,” including the World Health Organization's mortality code set and the HIPAA standard code set adopted for diagnoses, ICD-9-CM Vols. 1 & 2. These are distinct code sets from ICD-9-CM Vol. 3. The distinctions between these code sets are described in app. II.

<sup>4</sup>“Other medical services” also include such services as radiology and laboratory, physical and occupational therapy, and hearing and vision services.

---

particularly ICD-9-CM Vol. 3, and specifically cited the International Classification of Diseases, 10th Revision, Procedural Coding System (referred to here as 10-PCS) as a potential replacement for ICD-9-CM Vol. 3, once it was ready for implementation. Nevertheless, many representatives of the health care industry argue that the lack of comparability between existing code sets contributes to the inefficiencies providers and payers experience in using two procedural code sets and impedes the analysis of health-related data. These representatives of the health care industry have suggested the adoption of a single code set for reporting inpatient hospital procedures, physician services, and other medical services such as hospital outpatient procedures. For example, since 1993 the National Committee on Vital and Health Statistics (NCVHS)—a public advisory body to HHS in the areas of health data and administrative simplification—has recommended the adoption of a single code set for reporting these procedures.<sup>5, 6</sup>

Given these concerns, you asked that we study issues surrounding procedural code sets. Specifically, we have examined the benefits and challenges associated with: (1) the ICD-9-CM Vol. 3 and CPT as standard code sets under HIPAA, (2) 10-PCS, the new procedural code set which was designed to replace ICD-9-CM Vol. 3, and (3) potentially replacing dual procedural code sets with a single set for reporting inpatient hospital procedures, physician services, and other medical services such as hospital outpatient procedures.

In response to your request, we performed a literature review, including review of the relevant laws and regulations,<sup>7</sup> the 1993 NCVHS report on

---

<sup>5</sup>The NCVHS serves as the statutory public advisory body to HHS in the area of health data and statistics. The committee is composed of 18 individuals from the private sector, 16 of whom are appointed by the Secretary of HHS for terms of 4 years each with about 4 new members being appointed each year, and 2 of whom are selected by congressional leadership. 42 U.S.C. § 242k(k) (1994).

<sup>6</sup>The NCVHS recommendations explicitly state that a single procedural code set should be limited to the classification of procedures and should not attempt to incorporate codes for diagnoses or other health-related services such as medical devices, supplies and equipment, and prescription drugs.

<sup>7</sup>Our review of the relevant regulations included a review of CMS's summarization of the public comments submitted in response to the proposed regulation for adopting HIPAA standard code sets. CMS received approximately 17,000 public comments from representatives of the health care industry including professional associations and societies, health care workers, law firms, third party health insurers, hospitals, and private individuals. 65 *Fed. Reg.* 50,312, 50,314 (Aug. 17, 2000).

---

procedural code sets,<sup>8</sup> and other published materials related to procedural code sets. We also interviewed representatives from: the American Hospital Association (AHA); the American Health Information Management Association (AHIMA), an association of health coding professionals; AMA; CMS; the National Centers for Health Statistics (NCHS); NCVHS; and 3M Health Information Systems, the contractor hired by CMS to revise ICD-9-CM Vol. 3. We conducted our work from August 2001 through July 2002 in accordance with generally accepted government auditing standards.

---

## Results in Brief

Given the 18-month timeframe allotted to HHS under HIPAA for adopting standard code sets, ICD-9-CM Vol. 3 and CPT were practical options for HIPAA standard code sets despite some limitations. Both ICD-9-CM Vol. 3 and CPT meet almost all of the criteria for standard code sets recommended by HHS's HIPAA implementation teams—that they improve the efficiency and meet the needs of the health care industry, have low additional costs and administrative burdens associated with their implementation, and are consistent with other HIPAA standards, for example. In addition, each of these codes sets meets a criterion for procedural code sets recommended by NCVHS. ICD-9-CM Vol. 3 meets the NCVHS criterion that a code set should contain codes that can be collapsed into increasingly broader categories of related procedures to facilitate aggregated data analysis. CPT meets the NCVHS criterion that a code set should maintain currency with technological advancement. Nevertheless, a consensus exists among most representatives of the health care industry, including CMS representatives, that ICD-9-CM Vol. 3 and CPT—to varying extents—do not meet some criteria for standard code sets under HIPAA and procedural code sets as recommended by NCVHS, including adequate levels of detail to facilitate data analysis and a capacity to add new codes in response to new technology. In fact, HHS recognized that in adopting ICD-9-CM Vol. 3 as a standard code set that it would need to replace it in the not-too-distant future, given its limitations.

---

<sup>8</sup>In drafting the 1993 report on procedural code sets, the NCVHS sought advice from a wide range of organizations and individuals who have a stake in procedural code sets, such as coding professionals, physicians, nurses, allied health professionals, researchers, health plans, hospitals, and trade associations representing these groups. See NCVHS, *1993 Annual Report of the National Committee on Vital and Health Statistics* (Washington, D.C.: U.S. Government Printing Office, May 1994).



---

Although 10-PCS is considered to be an improvement over ICD-9-CM Vol. 3, some challenges remain in implementing it as a new inpatient hospital procedural code set. Most representatives of the health care industry, including CMS representatives, consider 10-PCS to be an improvement over ICD-9-CM Vol. 3 for coding inpatient hospital procedures. In particular, 10-PCS meets almost all of the criteria for HIPAA standard code sets and for procedural code sets as recommended by NCVHS. According to many representatives of the health care industry, its greater coding specificity may facilitate the use of more specific data to analyze service utilization, outcomes, and cost. It also has a greater capacity than ICD-9-CM Vol. 3 to expand and the flexibility to be updated in response to new technology. However, the design and logic of 10-PCS raise concerns about potential challenges in its implementation. For example, there are some cases where 10-PCS's specificity creates a significantly greater number of codes for certain sets of similar procedures, which may reduce coding accuracy. In addition, because 10-PCS is a distinct departure from the design and logic of ICD-9-CM Vol. 3, the existing health care administrative system would need to be changed significantly to accommodate the new code set, imposing additional financial costs and administrative burdens on members of the health care industry that are currently undertaking changes to comply with the adopted standard code sets under HIPAA. Although the costs of replacing ICD-9-CM Vol. 3 are anticipated to be substantial, most representatives of the health care industry, including CMS representatives, agree that the limitations of ICD-9-CM Vol. 3 warrant its replacement. However, HHS has not reached a decision regarding a proposal to adopt 10-PCS as a replacement of ICD-9-CM Vol. 3.

The merit of replacing dual procedural code sets—those that are used for reporting inpatient hospital procedures, physician services, and other medical services including hospital outpatient procedures—with a single procedural code set is uncertain in light of practical considerations. Although ICD-9-CM Vol. 3 and CPT have been supported by most representatives of the health care industry, including CMS representatives, as acceptable options for HIPAA standard code sets, since 1993 NCVHS and other representatives of the health care industry have contended that a single procedural code set would reduce administrative inefficiencies associated with training coding professionals on the use of dual code sets for reporting medical procedures and would streamline data reporting and facilitate research across sites of service. Although these representatives of the health care industry support the adoption of a single procedural code set in principle, they disagree on which code set should serve in this capacity. Both 10-PCS and CPT have been mentioned as candidates for a

---

single procedure code set, yet neither has been shown to be acceptable or comprehensive enough to serve in this capacity. For example, 10-PCS, as currently designed, does not include codes for services such as office visits and physician consultations. As for CPT, according to AHA and AHIMA, it does not adequately capture facility-based, nonphysician services. Although no data on implementation costs exist, most representatives of the health care industry, including CMS representatives, agree that implementing any new single procedural code set, regardless of the code set that is adopted, would be costly and time consuming, probably taking at least a decade to complete. Nevertheless, there are no data or studies to demonstrate or measure the potential benefits or costs of adopting a single procedural code set. In comments on a draft of this report, CMS generally concurred with our analysis.

---

## Background

Health-related information from medical records and claims is used throughout the health care industry for the analysis of health-related services and payment. To facilitate the processing and analysis of these data, alphabetic or numeric codes are assigned to identify individual health-related services. Coding professionals, who receive degrees and certifications in health information management, translate the unstandardized narrative information reported by providers on medical records into the appropriate codes. These codes then assist members of the health care industry in identifying health-related services on medical claims for payment and analyzing service utilization, outcomes, and cost.

A procedural code set should include codes that accurately define similar medical procedures and minimize the number of broadly defined codes that group procedures that are seemingly similar, but in fact heterogeneous. The challenge in coding medical procedures is finding a level of specificity that allows codes to accurately represent the procedure being performed, without being so broad or so specific that the code set becomes more complex than necessary to administer and that the data yielded are too broad or specific to be effectively used in processing claims or conducting research.

In 1993, NCVHS suggested that a procedural code set should be easy to use and facilitate data analysis. To accomplish these goals, NCVHS recommended criteria for a procedural code set to HHS and the health care industry. Specifically, NCVHS recommended that a procedural code set be designed so that:

- 
- all aspects of a medical procedure are described in detail, including the body system affected (e.g., cardiovascular, respiratory), the approach that was used in completing the procedure (e.g., open surgery, laparoscopy), the technology that was used to complete the procedure (e.g., laparoscope, endoscope), and the device that was implanted, if any;
  - the code set allows for the addition of codes to reflect procedures introduced through new technology;
  - codes can be collapsed into increasingly larger broad categories of related procedures to facilitate aggregated data analysis; and
  - definitions are standardized.

---

## Adoption of Standard Code Sets under HIPAA

In 1996, the administrative simplification provisions of HIPAA required the Secretary of HHS to adopt standard code sets in an 18-month timeframe.<sup>9</sup> Through these standard code sets, HIPAA's goals were to (1) simplify administrative functions for Medicare, Medicaid, and other federal and private health programs, (2) improve the efficiency and effectiveness of the health care industry in general, and (3) enable the efficient electronic transmission of health-related information between members of the health care industry such as providers and payers. Under HIPAA, the Secretary had the authority to select existing code sets developed by either private or public entities as the national standard code sets.

In adopting standard code sets, HIPAA directed HHS to seek insight from various members of the health care industry.<sup>10</sup> With input from these industry experts, HHS interdepartmental "HIPAA implementation teams" defined a set of criteria to consider in selecting HIPAA standard code sets. In summary, HHS's HIPAA implementation teams recommended that standard code sets should:

- improve the efficiency and effectiveness of the health care industry;
- meet the needs of the health care industry;

---

<sup>9</sup>Pub. L. No. 104-191, § 262, Sec. 1174(a), 110 Stat. 1936, 2026 (codified at 42 U.S.C. § 1320d-3(a) (Supp. II 1996)).

<sup>10</sup>These members of the health care industry included the NCVHS, the National Uniform Billing Committee, the National Uniform Claim Committee, the Workgroup for Electronic Data Interchange, and the American Dental Association.

- 
- be supported by accredited standards-setting organizations or other public and private organizations that will maintain the standard code sets;<sup>11</sup>
  - have timely development, testing, implementation, and updating processes in place;
  - have low development and implementation costs relative to the benefits;
  - keep data collection and paperwork burdens on members of the health care industry as low as possible;
  - be technologically independent of computer programs used in health care transactions;
  - be consistent with other standard code sets under HIPAA;
  - be precise and unambiguous; and
  - incorporate flexibility to adapt more easily to changes in the health care industry, such as incorporating new codes for new health-related services and information technology.

On May 7, 1998, HHS proposed two standard code sets for reporting medical procedures under HIPAA: ICD-9-CM Vol. 3 for inpatient hospital procedures and CPT for all physician services and other medical services, including outpatient hospital procedures.<sup>12</sup> Members of the health care industry who commented on this proposed rule generally supported the adoption of these procedural code sets as standards on the grounds that they were already in widespread use throughout the health care industry. The final rule was published August 17, 2000, and these code sets became the procedural coding standards effective October 16, 2000.<sup>13, 14</sup> Recent legislation extended the deadline for complying with the HIPAA standard code set requirements to October 16, 2003, for those who submit a plan of how they will come into compliance by that date.<sup>15</sup>

---

<sup>11</sup> Accredited standards-setting organizations include the X12 Accredited Standards Committee and the National Council for Prescription Drug Programs. The American National Standards Institute accredits these organizations.

<sup>12</sup> 63 *Fed. Reg.* 25,272, 25,284.

<sup>13</sup> 65 *Fed. Reg.* 50,312.

<sup>14</sup> In addition to the standard code sets HHS adopted for reporting medical procedures, HHS adopted additional code sets to standardize the reporting of diagnoses and other health-related services, such as medical devices, supplies and equipment, home health care services, prescription drugs, and dental services (see app. I).

<sup>15</sup> Administrative Simplification Compliance Act, Pub. L. No. 107-105, § 2, 115 Stat. 1003, 1003 (2001).

---

## ICD-9-CM Vol. 3 and Its Maintenance

ICD-9-CM Vol. 3, the standard code set named for use in reporting inpatient hospital procedures, is maintained in the public domain by CMS. CMS revises ICD-9-CM Vol. 3 through the ICD-9-CM Coordination and Maintenance Committee meetings. Members of the health care industry attend these biannual public meetings at their discretion and typically include representatives from the AHA, AHIMA, and AMA, among others. Discussions at these meetings include proposed coding changes, such as the addition of codes to reflect new and distinct medical procedures—including those resulting from technological advancements—that may not be accurately represented by existing codes. CMS makes final decisions on whether a new medical procedure warrants a new code based on evidence and recommendations presented by stakeholders at the committee meetings. According to CMS representatives, it takes 6 to 18 months to consider new procedural coding requests, designate new codes to represent the new procedures, and implement the new codes. CMS implements newly approved inpatient service codes every October 1.

In addition to contributing to CMS's maintenance of ICD-9-CM Vol. 3, other organizations such as 3M Health Information Systems, AHA, AHIMA, and AMA publish and market coding textbooks, handbooks, workbooks, and software that are used by members of the health care industry.<sup>16</sup> For example, AHA maintains a free information clearinghouse for members of the health care industry with questions about coding. It also coordinates with CMS, NCHS, and AHIMA to write the official guidelines on the use of ICD-9-CM Vol. 3.<sup>17</sup> According to AHA estimates, the administrative costs for AHA to provide clearinghouse and guidance activities are about \$1 million per year. AHA also publishes textbooks, handbooks, and workbooks that are used in coding curriculums and the *Coding Clinic for ICD-9-CM*, a quarterly, subscription-based publication that serves as the primary manual of ICD-9-CM Vol. 3 guidelines. AHA projects that, for 2001, these publications will incur about \$1.7 million in costs and generate almost \$2 million in revenue.<sup>18</sup>

---

<sup>16</sup>In publishing such materials, these organizations do not pay royalties to CMS because ICD-9-CM Vol. 3 is in the public domain.

<sup>17</sup>When coordinating in this capacity, CMS, NCHS, AHA, and AHIMA are referred to as the "Cooperating Parties."

<sup>18</sup>Although other organizations in addition to AHA publish and market materials related to ICD-9-CM Vol. 3, we did not obtain information on the costs and revenues associated with their publications.

---

## CPT and Its Maintenance

CPT, the code set used to report physician services and other medical services including outpatient hospital procedures, is privately maintained. AMA, which copyrights CPT, maintains the code set through its CPT Editorial Panel, which is made up predominantly of AMA-appointed physicians.<sup>19</sup> The panel also includes such members as physicians nominated by CMS, the Blue Cross Blue Shield Association, AHA, and the Health Insurance Association of America. In addition, an AHIMA representative is permitted to attend the CPT Editorial Panel meetings and participate in discussions of new coding requests as a nonvoting panel member. The panel makes final decisions on requests for new procedure codes. Anyone can request a coding change to CPT and anyone who requests a coding change can present their views at the panel's quarterly meetings and stay throughout deliberations and voting, but the panel's meetings are closed to the general public. It takes approximately 18 months to consider new coding requests, designate new codes to represent the new procedures, and implement the new codes. Approved changes are added to the CPT by AMA and become effective every January 1.

In October 2001, the AMA released its yearly update of CPT as part of an effort to not just add new codes, but to also phase-in changes designed to improve the code set as a whole. The latest version of CPT was designed to revise code descriptors that had been problematic and had contributed to code ambiguity. For example, in some cases, AMA either added parenthetical statements to existing codes to define exactly what methods, techniques, and approaches were used in performing a procedure or, in other cases, it developed new codes to better delineate the procedures performed. In addition, AMA incorporated codes for nonphysician services such as home health care. Finally, CPT was modified to include a special category designed to expedite the adoption of codes for technically innovative procedures that may not have enough clinical evidence available to otherwise meet the approval standards of the CPT Editorial Panel. These codes will be used for data tracking purposes only and not for assigning payment.

---

<sup>19</sup>The CPT Editorial Panel is assisted by the CPT/HCPAC Advisory Committee (Health Care Professionals Advisory Committee). For example, the CPT/HCPAC Advisory Committee provides documentation to the panel regarding the appropriateness of various medical and surgical procedures under consideration for inclusion in the CPT. The 112-member CPT/HCPAC Advisory Committee is made up of physicians from national medical specialty societies, limited license practitioners, and allied health care professionals. Panel meetings are open to all CPT/HCPAC Advisory Committee members and their staff.

---

AMA reports that CPT's administrative costs—including those costs associated with collecting licensing fees, publishing CPT literature, holding panel meetings, and paying salaries—are about \$10.1 million a year. AMA estimates that its revenue from licensing fees paid by software companies (between \$3 million and \$4 million) and CPT publications totals about \$18 million, or about 7 percent of its annual budget. According to AMA estimates, most of the revenue is generated by the sale of the CPT codebook; other related revenue sources include textbooks, manuals, newsletters, and a CPT advice hotline, which is a subscription-based service staffed by five coding professionals. Under a 1983 agreement between HHS and AMA, CMS pays no fees for its use of CPT. As part of the agreement, CMS assists the AMA in maintaining and updating the code set through its representation on the CPT Editorial Panel.

---

## ICD-9-CM Vol. 3 and CPT Were Practical Options for Standard Code Sets, Despite Some Limitations

Both ICD-9-CM Vol. 3 and CPT meet almost all of the criteria for standard code sets recommended by HHS's HIPAA implementation teams. In addition, these codes sets each meet a criterion for procedural code sets recommended by NCVHS. Nevertheless, a consensus exists among most representatives of the health care industry, including CMS representatives, that ICD-9-CM Vol. 3 and CPT—to varying extents—do not meet some criteria for HIPAA standard code sets and procedural code sets, including adequate levels of detail to facilitate data analysis and a capacity to incorporate codes in response to new technology. In fact, HHS recognized that in adopting ICD-9-CM Vol. 3 as a standard code set that it would need to replace it in the not-too-distant future, given its limitations.

---

## Wide Use of ICD-9-CM Vol. 3 and CPT Made Them Practical Options for Standards

Given the 18-month timeframe in which HHS was required to adopt standard code sets under HIPAA, the widespread use of ICD-9-CM Vol. 3 and CPT made them the most practical options for standards at the time. In addition, both ICD-9-CM Vol. 3 and CPT meet almost all of the criteria for HIPAA standard code sets recommended by HHS's implementation teams (see table 1). For example, most members of the health care industry currently use one, if not both, of these procedural code sets to some extent. The existing health care administrative system for these procedural code sets—including trained coding professionals, publications, training manuals, computer software, medical claims forms, and fee schedules that are already aligned to these code sets—suggests that the costs of implementing these procedural code sets as standards across all providers and payers will be much lower than the costs of implementing less widely used code sets. The maintenance processes for both ICD-9-CM Vol. 3 and CPT are well established, systematic, and

operational, which should facilitate the implementation of these procedural code sets as HIPAA standards across all providers and payers.

**Table 1: Criteria for HIPAA Standard Code Sets Met by ICD-9-CM Vol. 3 and CPT**

<b>HIPAA standard code set criteria</b>	<b>Why ICD-9-CM Vol. 3 and CPT meet these criteria</b>
Standard code sets should improve the efficiency and effectiveness of the health care industry.	Improvements over the <i>status quo</i> will result from requiring members of the health care industry, such as providers and payers, to use ICD-9-CM Vol. 3 and CPT.
Standard code sets should meet the needs of the health care industry.	Essentially all segments of the health care industry testified that there were no practical alternatives to ICD-9-CM Vol. 3 and CPT for coding procedures.
Standard code sets should be supported by accredited standards-setting organizations or other public and private organizations that will maintain the code sets.	ICD-9-CM Vol. 3 and CPT are supported by federal agencies and private sector organizations that have demonstrated a commitment to maintaining them over time.
Standard code sets should have timely development, testing, implementation, and updating processes in place.	ICD-9-CM Vol. 3 and CPT have existing processes for updating in place.
Standard code sets should have low development and implementation costs relative to the benefits.	ICD-9-CM Vol. 3 and CPT are currently used throughout the health care industry.
Standard code sets should keep data collection and paperwork burdens on members of the health care industry as low as possible.	ICD-9-CM Vol. 3 and CPT are currently used throughout the health care industry, and should not add substantially to these burdens.
Standard code sets should be technologically independent of computer programs used in health care transactions.	ICD-9-CM Vol. 3 and CPT are technologically independent of computer programs.
Standard code sets should be consistent with other code set standards under HIPAA.	ICD-9-CM Vol. 3 and CPT are consistent with other standard code sets.

Source: GAO's analysis based on information from 63 *Fed. Reg.* 25,272, 25,274 (May 7, 1998).

In addition, ICD-9-CM Vol. 3 and CPT each meet a criterion for procedural code sets recommended by NCVHS. ICD-9-CM Vol. 3 meets the NCVHS criterion that a code set should contain codes that can be collapsed into increasingly broader categories of related procedures to facilitate aggregated data analysis. For example, all ICD-9-CM Vol. 3 codes beginning with "36" are classified as "operations on the heart vessels." This sequential structure allows many distinct procedures such as open coronary angioplasty (code 3603), percutaneous angioplasty (code 3606), and intercoronary thrombosis infusion (code 3604) to be collapsed into this broad category of similar procedures—"operations on the heart



vessels”—based on the “36” code alone, facilitating aggregated data analysis. As for CPT, the maintenance process established by the AMA for updating CPT is considered by many representatives of the health care industry, including NCVHS, to maintain currency with technological advancement.

ICD-9-CM Vol. 3 in Need of Replacement

Despite its widespread use, most representatives of the health care industry, including CMS representatives, agree that ICD-9-CM Vol. 3, designed more than 20 years ago, is outdated and, because of its limited coding capacity, irreparable. In fact, HHS recognized that in naming ICD-9-CM Vol. 3 as a HIPAA standard, it would need to replace it in the not-too-distant future, given its limitations. ICD-9-CM Vol. 3 does not meet 2 of the 10 criteria for HIPAA standard code sets and does not meet most of the procedural code set criteria recommended by NCVHS (see table 2).

Table 2: Criteria for Standard and Procedural Code Sets Not Met by ICD-9-CM Vol. 3		
HIPAA standard code set criteria	NCVHS procedural code set criteria	Why ICD-9-CM Vol. 3 does not meet these criteria
Standard code sets should be precise and unambiguous.	Procedural code set should describe all aspects of a medical procedure in detail.  Procedural code set definitions should be standardized.	ICD-9-CM Vol. 3 lacks the specificity needed to accurately identify many key aspects of medical procedures. Very distinct but related procedures may all be classified under one code, and variations in procedures performed or technologies used may not be identified. In addition, ICD-9-CM Vol. 3 uses inconsistent terminology, contributing to its ambiguity.
Standard code sets should incorporate flexibility to adapt more easily to changes in the health care industry, such as incorporating new codes for procedures introduced through new technology.	Procedural code set should allow for the addition of codes to reflect procedures introduced through new technology.	In ICD-9-CM Vol. 3, many of the code set sections for body systems are “full” and can no longer accommodate additional codes, requiring new procedures to be assigned their own code outside of their appropriate body system code sequence.

Sources: GAO’s analysis based on information from the *1993 Annual Report of the National Committee on Vital and Health Statistics* and 63 *Fed. Reg.* 25,272, 25,274 (May 7,1998).

First, ICD-9-CM Vol. 3 lacks the specificity needed to accurately identify many key aspects of medical procedures. Very distinct but related

---

procedures may all be classified under one code, and variations in procedures performed or technologies used may not be identified. For example, in this code set, a single code exists for all multiple vessel percutaneous angioplasties (code 3605), without specification as to the number of blood vessels involved, or what type of equipment—balloon-tip catheter, laser, or stent—was used.<sup>20</sup> If a stent was used, to fully represent the type of procedure performed, an additional, secondary code, code 3606, “insertion of coronary artery stent,” would also have to be reported. For payment or research purposes, to know how many vessels were involved in the procedure, or whether the stent used was self-expanding or expandable by a balloon, one would have to look to the medical record for this information, as the code would not capture this level of specificity. Without codes that accurately distinguish between the procedures performed, it is difficult to (1) identify trends in utilization and cost that may provide evidence to support the recalibration of payments, or (2) collect information on the performance outcomes of both new and existing procedures and technologies.<sup>21</sup>

Second, many representatives of the health care industry, including CMS representatives, agree that the four-character structure of ICD-9-CM Vol. 3 lacks the capacity to expand and the flexibility to appropriately incorporate new codes in response to new procedures and technology. Code set sections are organized by body systems such as the nervous, cardiovascular, and respiratory systems and by miscellaneous diagnostic and therapeutic procedures and services. With only 10 options available for each character (0 through 9), many of the code set sections for body systems are “full” and can no longer accommodate additional codes, requiring new procedures to be assigned their own code outside of their appropriate body system section. For example, CMS has determined that

---

<sup>20</sup>An angioplasty is a procedure designed to open narrowing blood vessels. Angioplasty using a balloon-tip catheter or tube stretches the blood vessel leaving a ragged surface after the balloon deflation, which triggers a healing response and breaking up of the plaque inside the vessel. Laser angioplasty involves the opening of a vessel using a laser, which is delivered by a fiber-optic probe with a metal tip converting light energy into heat energy, to vaporize the blockage. A stent is a device used to provide support for tubular structures like blood vessels. It can be made of rigid wire mesh, or may be a metal wire or tube.

<sup>21</sup>In some cases, procedures may be coded under broad codes that include many heterogeneous procedures. Such broad codes include, for example, code 3699, “heart vessel operation not elsewhere classified” for procedures on blood vessels that are not represented by the existing codes, and code 3710, “incision of the heart not otherwise classified” for procedures on the heart that cannot be identified and coded based on the information provided on medical records.

---

six new procedures involving cardiac resynchronization pacemakers, some of which have defibrillation capabilities, warrant the creation of their own codes.<sup>22</sup> Generally, these procedures would be assigned codes within the pacemaker code sequence in the cardiovascular section (code sequence 3770-3789). However, the code sequence for pacemaker codes is full and there is only one code available for use in the defibrillator code section. Therefore, to add new codes for these six new procedures, CMS assigned these new technologies to the code sequence beginning with “00,” which is outside of their appropriate section.<sup>23</sup> This solution makes the code set harder for providers and coding professionals to use and complicates the retrieval of data for research purposes, as some pacemaker procedure codes are grouped together and others may be interspersed with codes for a collection of dissimilar procedures.<sup>24</sup>

---

### CPT Seen as More Comprehensive, but Sometimes Ambiguous

Although CPT meets almost all of the criteria recommended for standard code sets under HIPAA (see table 1), it does not meet all of the criteria recommended for a procedural code set by NCVHS (see table 3). For example, CPT code 34001 represents an “embolectomy or thrombectomy, with or without catheter...”<sup>25</sup> Thus, this code is used to represent different procedures, without identifying the specific procedure that was actually performed. This lack of specificity is present for many CPT codes as their definitions use ambiguous language such as “and/or” and “with or without.” In addition, CPT generally lacks the consistency in its coding sequence that would enable data to be easily aggregated into broad categories. For example, in CPT, procedures on blood vessels can begin with the characters “33,” “34,” or “35,” making it more difficult to aggregate data for procedures performed on blood vessels. In addition, codes beginning with the characters “33” can represent such divergent

---

<sup>22</sup>A cardiac resynchronization pacemaker is one that synchronizes the electrical charges in the atrium of the heart with those in the ventricle of the heart by delivering stimuli in response to sensed activity in the atrium, ventricle, or both.

<sup>23</sup>CMS is assigning new procedures and services to the code sequences beginning with “00” and “17” when their appropriate body system code sequences are otherwise “full” because these sequences have codes that are available for assignment.

<sup>24</sup>The “00” code sequence also includes, for example, codes for new therapeutic ultrasound techniques because the ultrasound code sequence is full.

<sup>25</sup>An embolectomy is the surgical removal of a mass, such as a blood clot or another material, which passes through the blood vessels and eventually becomes lodged. A thrombectomy is the removal of a stationary blood clot along the wall of a blood vessel. Both masses, be they stationary or mobile, can block the flow of blood.

procedures as those involving the implantation of pacemakers and procedures on the cardiac valves, which further complicates the aggregation of like data.

**Table 3: Criteria for Standard and Procedural Code Sets Not Met by CPT**

HIPAA standard code set criteria	NCVHS procedural code set criteria	Why CPT does not meet these criteria
Standard code sets should be precise and unambiguous.	Procedural code set definitions should be standardized.	Some codes are used to represent different procedures, without identifying the specific procedure that was actually performed. This lack of specificity is present for many CPT codes as their definitions use ambiguous language such as “and/or” and “with or without.” In addition, CPT uses inconsistent terminology, contributing to its ambiguity.
	Procedural code set should include codes that can be collapsed into increasingly broader categories of related procedures to facilitate aggregated data analysis.	CPT generally lacks the consistency in its coding sequence that would enable data to be easily aggregated into broad categories.

Sources: GAO’s analysis based on information from the *1993 Annual Report of the National Committee on Vital and Health Statistics* and 63 *Fed. Reg.* 25,272, 25,274 (May 7,1998).

10-PCS Considered Improvement over Current Inpatient Code Set Standard, but Some Challenges Remain

Most representatives of the healthcare industry, including CMS representatives, consider 10-PCS to be an improvement over ICD-9-CM Vol. 3 for coding inpatient hospital procedures. In particular, 10-PCS meets almost all of the criteria for HIPAA standard code sets and for procedural code sets as recommended by NCVHS. However, the design and logic of 10-PCS raise concerns about potential challenges in its implementation, including coding accuracy and the availability of useful data. In addition, the existing health care administrative system would need to be changed significantly to accommodate 10-PCS, imposing additional financial costs and administrative burdens on members of the health care industry, such as providers and payers, who are currently undertaking changes to comply with HIPAA. Although the costs of implementing 10-PCS are anticipated to be substantial, most representatives of the health care industry, including CMS representatives, agree that the limitations of ICD-9-CM Vol. 3 warrant

its replacement. However, HHS has not yet reached a decision regarding a proposal to adopt 10-PCS as a replacement of ICD-9-CM Vol. 3.

10-PCS Addresses Criteria for Standard and Procedural Code Sets Not Met by ICD-9-CM Vol. 3

Most representatives of the health care industry, including CMS representatives, find 10-PCS’s design and logic to be an improvement over ICD-9-CM Vol. 3. Its seven-character code allows 34 alphanumeric values for each character, affording it much greater capacity than the existing procedural code sets.<sup>26</sup> Within its seven-character structure, 10-PCS is able to identify key aspects of procedures, including the body system and body part affected, the technique or approach of the procedure, and the technology used in completing it (see fig. 1). For example, the first of the seven characters represents the section that relates to the general type of procedure (e.g., surgery, obstetrical procedure, laboratory procedure); the second character is the body system (e.g., respiratory, gastrointestinal); the third character, the root operation or objective of the procedure (e.g., removal, repair); the fourth character, the body part; the fifth character, the approach or technique used; the sixth character, the device or devices left in the body after the procedure; and the seventh character, a qualifier that has a unique meaning for specific procedures, such as identifying the second site included in a bypass.

Figure 1: The Design and Logic of 10-PCS

Character 1	Character 2	Character 3	Character 4	Character 5	Character 6	Character 7
Area of clinical care	Body system	Root operation	Body part	Approach	Device implanted	Qualifier

Source: See Richard F. Averill and others, *Development of the ICD-10 Procedure Coding System (ICD-10-PCS)*, prepared under contract for CMS by 3M Health Information Systems (N.p., Apr. 1998).

Most representatives of the health care industry, including CMS representatives, consider 10-PCS to be an improvement over ICD-9-CM Vol. 3 for coding inpatient hospital procedures. In particular, its design and logic meet almost all of the criteria for HIPAA standard code sets and for procedural code sets recommended by NCVHS. In addition, 10-PCS addresses the criteria for HIPAA standard code sets and for procedural code sets recommended by NCVHS that are not met by ICD-9-CM Vol. 3 (see table 4). According to many representatives of the health care industry, 10-PCS’s greater coding specificity will distinguish among

<sup>26</sup>Currently, ICD-9-CM Vol. 3 has just over 3,500 active codes, whereas 10-PCS has over 197,000 codes, and this number could be expanded further.

distinct procedures that might otherwise be grouped into broadly defined ICD-9-CM Vol. 3 codes. This precision in coding could facilitate the use of more specific data to analyze service utilization, outcomes, and cost. For example, the ICD-9-CM Vol. 3 code 3605 for a multiple vessel angioplasty can represent many related procedures with no specification as to the number of blood vessels involved, the technique used in completing the procedure, or what devices, if any, were implanted in the blood vessels. Because of the increased flexibility and capacity of 10-PCS, 18 different procedures currently reflected under this one ICD-9-CM Vol. 3 code are coded separately under 10-PCS.

**Table 4: Criteria for Standard and Procedural Code Sets Not Met by ICD-9-CM Vol. 3, but Addressed by 10-PCS**

<b>HIPAA standard code set criteria</b>	<b>NCVHS procedural code set criteria</b>	<b>Why 10-PCS is better at addressing these criteria than ICD-9-CM Vol. 3</b>
Standard code sets should be precise and unambiguous.	Procedural code set should describe all aspects of a medical procedure in detail.  Procedural code set definitions should be standardized.	10-PCS is able to identify key aspects of procedures, including the body system and body part affected, the technique or approach of the procedure, and the technology used in completing it. 10-PCS incorporates standardization of characters and definitions using alphanumeric characters where each letter and number is predefined.
Standard code sets should incorporate flexibility to adapt more easily to changes in the health care industry, such as incorporating new codes for procedures introduced through new technology.	Procedural code set should allow for the addition of codes to reflect procedures introduced through new technology.	10-PCS's standardization of characters and definitions using alphanumeric characters facilitates how CMS will assign codes to new procedures.

Sources: GAO's analysis based on information from the *1993 Annual Report of the National Committee on Vital and Health Statistics* and 63 *Fed. Reg.* 25,272, 25,274 (May 7, 1998).

In addition, CMS representatives suggest that the design and logic of 10-PCS and its standardization of definitions should allow codes for new procedures and technologies to be added more expeditiously than under the current process used to update ICD-9-CM Vol. 3. Unlike 10-PCS, the numeric characters of ICD-9-CM Vol. 3 codes are not predefined to represent certain elements of procedures, including the type of procedure and the body part. According to CMS representatives, the ICD-9-CM Coordination Committee spends a significant amount of time trying to

---

determine how a new procedure should be defined and distinguished from existing procedures and what code should be used to represent that procedure. 10-PCS's standardization of characters and definitions using alphanumeric characters—where each letter and number is predefined to represent an area of clinical care, a body system, a root operation, and so on—should facilitate how CMS will assign codes to new procedures.

In addition to addressing the deficiencies of ICD-9-CM Vol. 3, many representatives of the health care industry, including CMS representatives, state that the design and logic of 10-PCS will facilitate the aggregation of data for analysis of utilization and health outcomes, as recommended by NCVHS. For example, when analyzing 10-PCS codes, one could aggregate the data broadly or narrowly based on the codes: all codes beginning with “027” broadly represent surgical procedures where great blood vessels are expanded; all codes beginning with “0272” represent such surgical procedures performed on three coronary arteries (i.e., great blood vessels), specifically.

---

## 10-PCS Design and Logic May Pose Challenges

Although 10-PCS has many advantages over ICD-9-CM Vol. 3, its design and logic may pose some challenges. First, experienced coding professionals contend that 10-PCS may require greater clinical expertise among coding professionals than the existing code sets. For example, in pretests, coding professionals found that because of its increased specificity and level of detail, 10-PCS would require a higher level of clinical knowledge in anatomy and physiology to translate the procedures recorded on medical records into the appropriate codes than ICD-9-CM Vol. 3 and would therefore require substantially more training. Once familiar with the code set, however, the coding professionals noted overall gains in efficiency, citing one pretest in particular in which 57 patient records that were difficult to code using ICD-9-CM Vol. 3 codes were more readily coded using 10-PCS codes.<sup>27</sup>

Second, AMA representatives contend that the terminology of 10-PCS is a distinct departure from the current medical terminology used by physicians and does not parallel the terminology used on medical records. As a result, these representatives contend that physicians, other

---

<sup>27</sup>Under contract with CMS, 3M Health Information Systems contracted with two Clinical Data Abstraction Centers to pretest 10-PCS. Three rounds of pretests were conducted by coding professionals on inpatient surgical procedures, outpatient procedures, obstetric and gynecological cases, and other medical records.

---

practitioners, and coding professionals will need to learn a vocabulary that differs from the terminology they now use to document medical procedures. According to the AMA, the 31 body system characters in 10-PCS do not conform to traditionally named body systems. For example, upper and lower arteries and veins, a distinction made in 10-PCS, is not a common anatomical distinction made by health care professionals.<sup>28</sup> In addition, “amputation” is the standard terminology for removal of an extremity; 10-PCS terminology uses “detachment” to describe this procedure. These differences in terminology may result in coding errors, particularly when the code set is first implemented, as coding professionals transcribe the terminology used on medical records into 10-PCS codes, which in turn could affect the appropriateness of payment and the accuracy of information used to analyze data on utilization, outcomes, and cost.

Finally, there are some cases where 10-PCS’s specificity creates a significantly greater number of codes, and it is unknown what effects, if any, this increased volume of codes will have on coding accuracy or the availability of useful data. For example, code 3691, the ICD-9-CM Vol. 3 code for “coronary vessel aneurysm repair,” can represent any number of related procedures with no specification as to the means of repair, the type of arteries, the number of arteries, or the device used. Because of the specificity of 10-PCS, 180 different procedures currently reflected under this one ICD-9-CM Vol. 3 code would be coded separately under 10-PCS. With more codes available for use, there are more opportunities for coding errors with inaccurate codes used in describing the procedure provided, particularly if the descriptions of procedures on medical records do not capture all the dimensions of the procedure needed to complete a code.

---

## Implementation of 10-PCS Will Involve Financial Costs and Administrative Burdens

10-PCS may not meet two of the criteria for standard code sets recommended by HHS’s HIPAA implementation teams: it may not have low implementation costs and its implementation as a standard code set may not keep data collection and paperwork burdens on members of the health care industry as low as possible. 10-PCS is a distinct departure from the design and logic of ICD-9-CM Vol. 3; thus the existing health care administrative system—including computer software, coding manuals,

---

<sup>28</sup> CPT defines arteries and veins by their anatomical location, e.g., brachial artery for an artery found in the arm and femoral artery for an artery found in the leg. 10-PCS would define these arteries as “upper” (for brachial) and “lower” (for femoral) arteries, which are not anatomical distinctions.



---

claims and remittance forms, and training for coding professionals and other health care professionals—would need to be adapted if 10-PCS were to be implemented. Therefore, the implementation of 10-PCS may impose other financial costs and administrative burdens on members of the health care industry, such as providers and payers, who are currently undertaking changes to implement ICD-9-CM Vol. 3 and CPT as standard code sets under HIPAA. Although the costs of implementing 10-PCS are anticipated to be high, and may impose additional administrative burdens on the health care industry, most representatives of the health care industry, including CMS representatives, agree that the limitations of ICD-9-CM Vol. 3 warrant the implementation of its replacement: 10-PCS.<sup>29</sup>

Although the development of 10-PCS is complete, HHS has not reached a decision regarding a proposal to adopt it as a HIPAA standard code set. For 10-PCS to replace ICD-9-CM Vol. 3 and be implemented as a HIPAA standard code set, it must go through a public comment and rulemaking process.<sup>30</sup> If 10-PCS is adopted as the new code set for reporting inpatient hospital procedures under HIPAA, CMS will most likely implement it concurrent with that of the revised diagnosis code set—the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM).<sup>31</sup> Some representatives of the health care industry suggested concurrent implementation to reduce administrative burdens and the additional disruption to the coding infrastructure that would result from nonconcurrent implementation of procedural and diagnosis code sets.

---

<sup>29</sup> Although the costs of implementing 10-PCS are anticipated to be high, there are no estimates available regarding the benefits or costs associated with replacing ICD-9-CM Vol. 3 with 10-PCS.

<sup>30</sup> The Administrative Procedure Act generally requires that before an agency can impose substantive requirements, such as new HIPAA standards, it must publish a notice of proposed rulemaking in the *Federal Register* and afford the public an opportunity to comment on it, as well as incorporate a detailed statement of the rule's purpose, taking comments into consideration, when the final rule is published in the *Federal Register*. 5 U.S.C. § 553 (2000). The implementation of a new code set that is a distinct departure from an existing code set, such as 10-PCS, is likely to require changes to claims and remittance forms. Any changes to these forms are also subject to public comment and rulemaking.

<sup>31</sup> The revised diagnosis code set, ICD-10-CM, has not been pretested or published for public comment.

---

## Merit of Establishing a Single Procedural Code Set Uncertain in Light of Practical Considerations

Although ICD-9-CM Vol. 3 and CPT have been supported by most representatives of the health care industry as acceptable options for HIPAA standard code sets given the practical considerations, since 1993 NCVHS and other representatives of the health care industry have argued that a single procedural code set for reporting inpatient hospital procedures, physician services, and other medical services including outpatient hospital procedures would streamline data reporting and facilitate research across providers and sites of service. Although these representatives of the health care industry support the adoption of a single procedural code set in principle, they disagree on which code set should serve in this capacity. Although no data on implementation costs exist, most representatives of the health care industry, including CMS representatives, agree that implementing any new single code set, regardless of the code set that is adopted, would be costly and time consuming; CMS estimates that adopting a single code set for procedures would likely take at least a decade to complete. Nevertheless, there are no data or studies to demonstrate the potential benefits or costs of adopting a single procedural code set.

---

## Representatives of the Health Care Industry Agree That One Code Set Is Preferable to Two

Since 1993, NCVHS has supported the adoption of a single code set for reporting inpatient hospital procedures, physician services, and other medical services, including outpatient hospital procedures.<sup>32</sup> NCVHS contends that because of variations in design and terminology between ICD-9-CM Vol. 3 and CPT, the simultaneous operation of the dual code sets is not conducive to aggregating data needed to perform utilization and outcome analyses across providers and sites of service. For example, for payment purposes, hospitals need to use both procedural code sets—an inpatient hospital procedure receives an ICD-9-CM Vol. 3 code for payment purposes whereas the same procedure performed in a hospital outpatient department receives a CPT code. In order for hospitals to analyze the provision of services across inpatient and outpatient departments, they must voluntarily code these procedures using both ICD-9-CM Vol. 3 and CPT so that these data can be aggregated. For the same reason, this dual code set arrangement complicates the research activities of health care analysts seeking data on a particular procedure performed across providers and sites of service. Such analyses are becoming more important as advancements in medical technology increase the ability of providers to

---

<sup>32</sup>There were no empirical data available on the benefits or costs of a single procedural code set for NCVHS to review, and thereby consider, in forming its recommendations.

---

perform procedures in various sites of service. NCVHS also notes that efforts to reduce fraud and abuse require more uniformity in coding; multiple code sets, with entirely different maintenance processes and rules, add to the complexity of proper billing and the difficulties of regulators and law enforcement officials in identifying billing violations.

Other representatives of the health care industry support the adoption of a single procedural code set in principle. For example, AHIMA representatives support a single procedural code set, suggesting that a single set would reduce the level of resources—including staff, software, and updated manual and guideline publications—needed by hospitals to operate separate inpatient and outpatient procedural code sets. Currently, the operation of dual procedural code sets requires hospitals to maintain either separate coding staffs with expertise in each set or a single coding staff with expertise in both sets. AMA concurs that ideally one procedural code set could be used by providers in all sites of service, allowing for true administrative efficiencies and the reduction of burdens faced by providers that currently use multiple sets.

---

**Neither 10-PCS nor CPT, as Designed, Would Suffice as a Single Code Set**

A single procedural code set has not been developed. Although most representatives of the health care industry, including CMS representatives, agree ICD-9-CM Vol. 3 would not suffice as a single procedural code set, substantial disagreements exist on whether 10-PCS or CPT could serve in this capacity. AHIMA views 10-PCS as a potential candidate because it meets the procedural code set criteria recommended by NCVHS, but has stated that pretesting of this new code set for many outpatient procedures, including physician services, has been too limited to make conclusive recommendations. AMA argues that 10-PCS would not suffice as a single procedural code set. In addition to not reflecting the terminology currently used by the medical profession, 10-PCS does not include codes for certain outpatient procedures now represented in CPT, such as those for “evaluation and management” services—physician office visits, consultations, and hospital observation services.<sup>33</sup> If 10-PCS were to be

---

<sup>33</sup> Among the major services provided by physicians, “evaluation and management” services accounted for the largest percentage of Medicare payment schedule charges for physician, outpatient hospital care, and other medical services in 1999, at almost 44 percent. Nineteen of the top 25 codes that were billed to Medicare that year captured “evaluation and management” services. See Kurt Gillis, *Physician Marketplace Report: Medicare Physician Payment Schedule Services for 1999—A Summary of Claims Data* (N.p., AMA, Dec. 2001).

---

used as a single procedural code set, adaptations to the code set would have to be made to incorporate these services. CMS has not planned to test 10-PCS as a candidate for a single procedural code set.

AMA supports a single procedural code set that would be based on CPT, because it is already widely used by the health care industry and could be adapted for coding inpatient hospital procedures. However, according to NCVHS, CPT is not an ideal candidate for a single procedural code set because its definitions are not always precise and unambiguous and its codes lack the ability to be easily collapsed into broad categories for aggregated data analysis. In addition, AHA and AHIMA contend that CPT is designed to describe physician-based services specifically and does not adequately capture hospital-based, nonphysician services.

---

### Implementing a Single Code Set Would Involve Significant Costs and Time

Although no data on implementation costs exist, most representatives of the health care industry, including CMS representatives, agree that implementing any single procedural code set, regardless of the code set that is adopted, would involve significant costs and time. For example, coding textbooks, handbooks, workbooks, software, and claims forms would need to be revised or developed. All providers and payers would need to retrain staff, update computer software, and create or purchase new manuals and other educational materials. In addition, a single procedural code set would need to be coordinated with public and private payment systems for inpatient and outpatient procedures, including physician services, which would contribute to the costs of implementing such a code set. Finally, some representatives of the health care industry note that even if an existing code set such as 10-PCS or CPT were adopted as a single procedural code set, the process for its adaptation and implementation would take at least a decade.

---

### No Empirical Evidence on Benefits or Costs of a Single Code Set

There have been no empirical studies on the adoption of a single procedural code set to measure the potential benefits identified by NCVHS and others or to estimate the costs of implementing such a code set. Recognizing the lack of empirical evidence, NCVHS stated in its recommendations that it would be necessary to evaluate the costs, benefits, and impact of a single procedural code set. AHA has stated that any proposed change should be thoroughly tested to prove that the procedural code set is both functional and able to be coordinated with payment systems. In addition, AHIMA recommends that federally funded research examine the feasibility, efficacy, costs, and benefits of moving to such a set.

---

The benefits of a single procedural code set for research may be altered by developments in processing health-related information. Increasingly, the health care industry is moving toward electronic medical records and claims. Companies are working to create search engines that would align the unstandardized terminology found on electronic medical records with variations in definitions from existing code sets. For example, the narratives on a medical record may list “myocardial infarction,” “MI,” or “heart attack” to represent the same condition. Similarly, ICD-9-CM Vol. 3, CPT, and 10-PCS have differences in terminology to describe similar medical procedures. These search engines would allow for searches under key terms and retrieve the appropriate data regardless of the terminology or code that is used on electronic medical records and claims, facilitating the analysis of data across sites of service.

---

## Concluding Observations

ICD-9-CM Vol. 3 and CPT, although not without limitations, were practical options for HIPAA code set standards given their widespread use in the health care industry and the time constraints for their adoption. In addition, these procedural code sets meet almost all of the criteria recommended for HIPAA standard code sets—that they improve the efficiency and meet the needs of the health care industry, are recognized by the public and private organizations that will maintain the code sets, have low additional costs and administrative burdens associated with their implementation, are independent of computer programs, and are consistent with other HIPAA standard code sets. Nevertheless, many representatives of the health care industry argue that the adoption of a single procedural code set could help further improve the efficiency of data reporting and facilitate data analysis across sites of service. Yet it is unknown if the benefits of moving to a single procedural code set would justify the transition costs, or how long it would take for the benefits to recoup these costs because the theoretical merits of a single procedural code set have yet to be demonstrated empirically. Considering the adequacy of ICD-9-CM Vol. 3 and CPT in meeting almost all of the criteria recommended for HIPAA standard code sets, the practical challenges of implementing a single procedural code set, and lack of empirical evidence to either support or disprove the merits of doing so, we believe that dual code sets for reporting medical procedures are acceptable under HIPAA. In addition, we concur with those representatives of the health care industry who contend that more study is needed to examine the possible benefits of adopting a single code set for medical procedures before its implementation could be considered.

---

## Agency Comments

We received written comments from CMS on a draft of this report (see app. III). We also received written comments from AHA, AHIMA, and AMA on excerpts of our draft report. In general, CMS concurred with our analysis. CMS said that this subject is of concern to HHS because the Secretary is considering how to proceed in the face of the perceived inadequacies of ICD-9-CM Vol. 3 for the future coding of inpatient hospital procedures. CMS also said it was important to emphasize that the decision to adopt ICD-9-CM Vol. 3 as a HIPAA standard code set was made following an evaluation of its benefits and limitations and that it represented the best alternative available at the time for inpatient procedure coding. In addition, while CMS agreed that the costs of replacing ICD-9-CM Vol. 3 with 10-PCS would be significant, they emphasized that no estimate is available and that it is difficult to justify referring to these costs as “high,” as we do in our report. CMS said that the costs associated with making a change (such as software and training manuals) should be balanced against the costs to the health care system of continuing to use an out-of-date code set. We agree with CMS that the costs associated with replacing ICD-9-CM Vol. 3 should be balanced against the costs to the health care system of its continued use. Nevertheless, we feel that the costs associated with replacing it for the myriad of users within the health care system—updating computer software, coding manuals, and claims and remittance forms and training coding professionals and other health care professionals—will ultimately be “high.” Finally, CMS said the report should clarify that the Secretary has not made a decision to eliminate ICD-9-CM Vol. 3 and adopt 10-PCS. We have revised the report accordingly. CMS, AHA, AHIMA, and AMA also made technical comments that we have incorporated where appropriate.

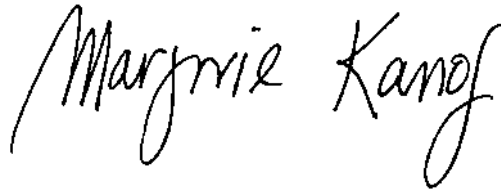
---

We are sending copies of this report to CMS, AHA, AHIMA, and AMA, and will make it available to those who are interested upon request. In addition, the report is available at no charge on GAO’s Web site at <http://www.gao.gov>.

---

If you or your staff have any questions, please contact me at (202) 512-7101. Emily J. Rowe, Hannah Fein, Preeti Gadhoke, and Martin T. Gahart made major contributions to this report.

Sincerely yours,

A handwritten signature in black ink that reads "Marjorie Kanof". The signature is written in a cursive, flowing style.

Marjorie Kanof  
Director, Health Care—Clinical  
and Military Health Care Issues

# Appendix I: Code Set Standards for Health-Related Services Adopted under HIPAA

The Health Insurance Portability and Accessibility Act of 1996 (HIPAA) required the Secretary of the Department of Health and Human Services (HHS) to adopt standard code sets for describing health-related services in connection with transactions such as filing claims for payment. In addition, HIPAA required these standard code sets to be used by all providers and payers. In response, HHS adopted several code sets to standardize the reporting of procedures, diagnoses, and other health-related services, such as medical devices, supplies and equipment, prescription drugs, and dental services (see table 5).

**Table 5: Standard Code Sets Adopted under HIPAA**

Standard code set	Health-related services	Code set maintenance
International Classification of Diseases, 9 <sup>th</sup> Revision, Clinical Modification, Volumes 1 and 2 (ICD-9-CM Vols. 1&2)	Diagnoses, including: <ul style="list-style-type: none"> <li>diseases, injuries, impairments, other health-related problems and their manifestations; and</li> <li>causes of injury, disease, impairment, or other health-related problems</li> </ul>	National Centers for Health Statistics—in coordination with the World Health Organization—through the ICD-9-CM Coordination and Maintenance Committee  Meetings are open to the public
International Classification of Diseases, 9 <sup>th</sup> Revision, Clinical Modification, Volume 3 (ICD-9-CM Vol. 3)	Hospital inpatient procedures, including actions taken to prevent, diagnose, treat, or manage diseases, injuries, and impairments	Centers for Medicare and Medicaid Services through the ICD-9-CM Coordination and Maintenance Committee  Meetings are open to the public
Current Procedural Terminology (CPT)  (Level I of the Health Care Procedural Coding System or HCPCS)	Physician services  Hospital outpatient medical procedures and other medical services, including radiology and laboratory; physical and occupational therapy; and hearing and vision services  Home health services (as of December 31, 2003, when HCPCS Level III “local codes” are eliminated)	Copyrighted and maintained by the American Medical Association through the CPT Editorial Panel  Meetings are not open to the public



---

**Appendix I: Code Set Standards for Health-Related Services Adopted under HIPAA**

<b>Standard code set</b>	<b>Health-related services</b>	<b>Code set maintenance</b>
HCPCS Level II	All other medical services not covered by CPT, including: medical supplies; orthototic and prosthetic devices; durable medical equipment; and transportation services, including ambulance	CMS, the Blue Cross Blue Shield Association, and the Health Insurance Association of America through the HCPCS National Panel  Meetings are not open to the public
National Drug Codes (NDC) <sup>a</sup>	Drugs and biologics	Food and Drug Administration in collaboration with drug manufacturers
Code on Dental Procedures and Nomenclature	Dental services	Copyrighted and maintained by the American Dental Association (ADA) through the ADA Code Revision Committee  Meetings are not open to the public

<sup>a</sup>HHS has recently proposed to repeal the adoption of NDC as the standard code set for reporting drugs and biologics in all health-related transactions, except for those involving retail pharmacies. 67 *Fed. Reg.* 38,044 (May 31, 2002).

Source: GAO's analysis based on information from 65 *Fed. Reg.* 50,312, 50,370 (Aug. 17, 2000).

# Appendix II: The Distinct and Independent Code Sets Known as “ICD-9”

There are several distinct code sets similarly referred to as “ICD-9” that are used to code different health-related services (see table 6). The World Health Organization’s (WHO) International Classification of Diseases, 9th Revision (ICD-9) was used worldwide to code and classify causes of death from death certificates before WHO adopted the tenth revision. The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) has three, publicly maintained volumes that have been adopted as standard code sets for assigning codes to diagnoses and inpatient hospital procedures under the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Volumes 1 and 2 of ICD-9-CM are based on WHO’s ICD-9 mortality code set and have been named the standard code set under HIPAA to code and classify diagnosis data from inpatient and outpatient records, physician offices, and most National Centers for Health Statistics (NCHS) surveys. NCHS is responsible for the use, interpretation, and periodic revision of the diagnosis code set in collaboration with WHO. Volume 3 of ICD-9-CM has been named as the standard code set under HIPAA for coding inpatient hospital procedures. It is maintained in the public domain by the Centers for Medicare and Medicaid Services (CMS) and pertains to the provision of hospital inpatient procedures.

**Table 6: Description of the Distinct and Independent Code Sets Known as “ICD-9”**

Official code set title	Abbreviated code set title	Type of code set	Scope of code set’s use
International Classification of Diseases, 9th Revision <sup>a</sup>	ICD-9	Causes of death/mortality statistics	International use, developed by WHO
International Classification of Diseases, 9th Revision, Clinical Modification, Volumes 1 and 2	ICD-9-CM Vols. 1& 2	Diagnoses	Used in the United States, maintained by NCHS in coordination with WHO
International Classification of Diseases, 9th Revision, Clinical Modification, Volume 3	ICD-9-CM Vol. 3	Hospital inpatient procedures	Used in the United States, maintained by CMS

<sup>a</sup>WHO’s ICD-9 mortality code set is no longer in print and has been replaced with the International Classification of Diseases, 10th Revision.

Source: NCHS, <http://www.cdc.gov/nchs/icd9.htm> (cited Nov. 29, 2001).

# Appendix III: Comments from the Centers for Medicare and Medicaid Services





DEPARTMENT OF HEALTH & HUMAN SERVICES

Centers for Medicare & Medicaid Services

Administrator  
Washington, DC 20201

**DATE:** JUL 24 2002

**TO:** Marjorie Kanof   
Director, Health Care—Clinical and Military Health Care Issues

**FROM:** Thomas A. Scully   
Administrator

**SUBJECT:** General Accounting Office (GAO) Draft Report, "HIPAA Standards: Dual Code Sets Are Acceptable for Reporting Medical Procedures," (GAO-02-796)

We have reviewed GAO's draft report, which discusses its study of issues surrounding the adoption of procedural code set standards under the administrative simplification provisions of the Health Insurance Portability and Accountability Act (HIPAA). We note that the report does not include any recommendations.

In general, we concur with GAO's analysis. This subject is of concern to the Department of Health and Human Services at the moment because the Secretary is considering how to proceed in the face of the perceived inadequacies of the ICD-9-CM coding system for the future coding of inpatient hospital services. The GAO's report provides information on an interrelated group of questions facing the Department in this area, including:

- Should the ICD-9-CM be replaced?
- If so, should we propose the ICD-10-PCS for use by hospitals?
- Should the Secretary propose to require one medical data code set for use by both hospitals and physicians for coding procedures, physician services, and other health care services? If so, should that code set be CPT, ICD-10-PCS, or some other option?

We believe the GAO report provides a useful summary of the issues associated with these questions. It is important to note that these issues are under consideration, and the Secretary of Health and Human Services has not made final decisions. In particular, it is worth emphasizing that code sets other than ICD-10-PCS may be considered as potential replacements for ICD-9-CM. Decisions on alternative code sets and related issues will follow the notice-and-comment rulemaking process, and we look forward to receiving public input through that process.

Page 2- Marjorie Kanof

The report explores the perceived limitations of the ICD-9-CM code set, and it might be read as calling into question the decision to designate ICD-9-CM as a standard code set in the first place. We think it important to emphasize that the decision to adopt ICD-9-CM as a standard code set was made following careful evaluation of its advantages and limitations and those of possible alternatives. (For instance, ICD-10 was under development at that time, but it needed further testing before it would be ready for consideration for implementation.) The Secretary determined that ICD-9-CM was the best alternative available at that time for inpatient procedure coding.

At several points in the draft report, GAO describes the likely costs of moving from ICD-9-CM to ICD-10-PCS as “high.” While we agree that the costs may be significant, no dollar estimate is available, and hence we think it is difficult to justify referring to these costs as “high.” Whether the costs are viewed as “high” is a relative matter and depends on what question is asked. We think that the costs (in software, training, manuals, etc.) of making a change must be balanced against the costs to the health care system of continuing to use an out-of date code set.

On page 5, the statement “According to CMS representatives, 10-PCS will not be implemented until at least 2005” suggests that a decision has been made to eliminate ICD-9-CM and adopt this code set. This issue is still under consideration, and the National Committee on Vital and Health Statistics is deliberating on a recommendation to the Secretary. We suggest revising the sentence and similar statements to clarify that the earliest any alternative code set could be implemented is 2005.

We look forward to working with GAO on these and other issues.

---

## GAO's Mission

The General Accounting Office, the investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

---

## Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through the Internet. GAO's Web site ([www.gao.gov](http://www.gao.gov)) contains abstracts and full-text files of current reports and testimony and an expanding archive of older products. The Web site features a search engine to help you locate documents using key words and phrases. You can print these documents in their entirety, including charts and other graphics.

Each day, GAO issues a list of newly released reports, testimony, and correspondence. GAO posts this list, known as "Today's Reports," on its Web site daily. The list contains links to the full-text document files. To have GAO e-mail this list to you every afternoon, go to [www.gao.gov](http://www.gao.gov) and select "Subscribe to daily E-mail alert for newly released products" under the GAO Reports heading.

---

## Order by Mail or Phone

The first copy of each printed report is free. Additional copies are \$2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. General Accounting Office  
441 G Street NW, Room LM  
Washington, D.C. 20548

To order by Phone:   Voice:   (202) 512-6000  
                              TDD:    (202) 512-2537  
                              Fax:     (202) 512-6061

---

## To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: [www.gao.gov/fraudnet/fraudnet.htm](http://www.gao.gov/fraudnet/fraudnet.htm)

E-mail: [fraudnet@gao.gov](mailto:fraudnet@gao.gov)

Automated answering system: (800) 424-5454 or (202) 512-7470

---

## Public Affairs

Jeff Nelligan, managing director, [NelliganJ@gao.gov](mailto:NelliganJ@gao.gov) (202) 512-4800  
U.S. General Accounting Office, 441 G Street NW, Room 7149  
Washington, D.C. 20548